CLINICAL AND LABORATORY STANDARDS INSTITUTE®

1st Edition

VET09

Understanding Susceptibility Test Data as a Component of Antimicrobial Stewardship in Veterinary Settings

This report provides veterinarians with the information needed to successfully acquire and interpret antimicrobial susceptibility test results. It promotes common understanding between the veterinarian and the veterinary microbiology laboratory by providing example culture and susceptibility reports and animal species–specific guidance on applying breakpoints to interpret susceptibility test results.

A CLSI report for global application.

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Understanding Susceptibility Test Data as a Component of Antimicrobial Stewardship in Veterinary Settings

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Abstract

Clinical and Laboratory Standards Institute report VET09—*Understanding Susceptibility Test Data as a Component of Antimicrobial Stewardship in Veterinary Settings* discusses antimicrobial susceptibility testing (AST) that provides important, clinically relevant information to the submitting veterinarian if the veterinarian understands how the testing is performed and how the results can be interpreted. This report provides veterinarians background information about laboratory processes, including how AST is performed, reasons for AST not being performed, and how AST results are assessed by the laboratory. It also describes the reasons for varying degrees of confidence in applying breakpoints for interpreting AST results, which will empower veterinarians as they make decisions about the use of antimicrobial agents to treat bacterial disease in animals.

This report gives an overview of some of the factors that affect antimicrobial drug selection in animals, including principles of antimicrobial pharmacology, how bacterial species identification affects AST results interpretation, and the veterinarian's role in ensuring AST results are accurate and useful. By providing example susceptibility test reports with callout boxes, important facets of laboratory reports with AST results are highlighted to aid the veterinarian in maximizing the data.

This report has separate chapters for animal species–specific guidance on how to interpret AST data for dogs, cats, horses, cattle, pigs, and fish, and uniquely, it provides evidence-based appraisals of confidence in the AST data reported by laboratories. This guidance can be also used by laboratories to select appropriate breakpoints for assigning interpretive categories and to aid client veterinarians in interpreting their data.

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Foreword

This report is designed to provide veterinarians and other stakeholders in veterinary diagnostics with key information needed to appropriately interpret antimicrobial susceptibility testing (AST) data for application to clinical decision-making. This report can therefore be read from beginning to end for a comprehensive overview by animal species, bacterial type, and antimicrobial agents in the context of AST. However, each chapter is also designed to provide stand-alone information, so the report can be sampled as needed.

This report includes general guidance on how to apply pharmacological principles to selection and use of antimicrobial agents and how to get the best information from the laboratory, starting with submitting an animal specimen for culture through receiving the laboratory report with AST results. Basic components of a laboratory report and specific examples with AST results are included with commentary on the information reported, as well as different presentations that clinicians may receive from different laboratories. There is also an overview of regulatory and legal considerations for antimicrobial agents. Finally, separate chapters are included that focus on AST results interpretations applied to different animal species: dogs, cats, horses, cattle, pigs, and fish.

Some unique information included in this report is not available anywhere else, including recommendations on extrapolating from:

- One infection site to another
  - For example, whether a breakpoint established for *Escherichia coli* from skin and soft-tissue infections in dogs can be applied to *E. coli* isolated from the lungs
- One bacterial species to another
  - For example, whether a breakpoint established for *E. coli* can be applied to *Klebsiella pneumoniae*
- One animal species to another
  - For example, whether it is reasonable to apply canine breakpoints to bacterial isolates from cats

NOTE: The content of this report is supported by the CLSI consensus process and does not necessarily reflect the views of any single individual or organization.

NOTE:

Each chapter in this report is designed to provide stand-alone information.

KEY WORDS

Antimicrobial stewardship

Antimicrobial susceptibility testing

Breakpoints

Interpretive categories

Laboratory

Reporting

Species-specific breakpoints

Veterinary